## ALPAR

## SEQUENCE LISTING

OIPE CONTO

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<110> TSUCHIYA, MASAYUKI <120> NATURAL HUMANIZED ANTIBODY <130> 053466/0274 <140> 09/509,098 <141> 2000-03-22 <150> PCT/JP98/04469 <151> 1998-10-02 <150> JP 9-271726 <151> 1997-10-03 <160> 203 <170> PatentIn Ver. 2.1 <210> 1 <211> 394 <212> DNA <213> Murine sp. <220> <221> sig\_peptide <222> (1)..(72) <220> <221> mat\_peptide <222> (73)..(393) <220> <221> CDS <222> (1) .. (393) <220> <223> Description of Artificial Sequence: cDNA coding for L chain V region of anti-HM1.24 antibody <400> 1 atg ggc ttc aag atg gag tca cat ttt ctg gtc ttt gta ttc gtg ttt 48 Met Gly Phe Lys Met Glu Ser His Phe Leu Val Phe Val Phe Val Phe ctc tgg ttg tct ggt gtt gac gga gac att gtg atg acc cag tct cac 96 Leu Trp Leu Ser Gly Val Asp Gly Asp Ile Val Met Thr Gln Ser His aaa ttc atg tcc aca tca gta gga gac agg gtc agc atc acc tgc aag 144 Lys Phe Met Ser Thr Ser Val Gly Asp Arg Val Ser Ile Thr Cys Lys 10 gcc agt cag gat gtg aat act gct gta gcc tgg tat caa caa aaa cca 192 Ala Ser Gln Asp Val Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro

gga caa tcg cct aaa cta ctg att tac tcg gca tcc aac cgg tac act 240 Gly Gln Ser Pro Lys Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr 288 gga gtc cct gat cgc atc act ggc agt gga tct ggg acg gat ttc act Gly Val Pro Asp Arg Ile Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr 65 ttc acc atc agc agt gtg cag gcg gaa gac ctg gca ctt tat tac tgt 336 Phe Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Leu Tyr Tyr Cys cag caa cat tat agt act cca ttc acg ttc ggc tcg ggg aca aag ttg 384 Gln Gln His Tyr Ser Thr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu 95 gaa ata aaa c 394 Glu Ile Lys 105 <210> 2 <211> 131 <212> PRT <213> Murine sp. <220> <223> Description of Artificial Sequence: Amino acid sequence of L chain V region of mouse anti-HM1.24 antibody <400> 2 Met Gly Phe Lys Met Glu Ser His Phe Leu Val Phe Val Phe Val Phe -20 -10 Leu Trp Leu Ser Gly Val Asp Gly Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Ile Thr Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala Glu Asp Leu Ala Leu Tyr Tyr Cys Gln Gln His Tyr Ser Thr Pro Phe Thr Phe Gly Ser Gly Thr Lys Leu 95

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Glu Ile Lys
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                -15
                                     -10
gcc tac tca cag gtt caa ctc cag cag tct ggg gct gag ctg gca aga
                                                                    96
Ala Tyr Ser Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg
         - 1
cct ggg gct tca gtg aag ttg tcc tgc aag gct tct ggc tac acc ttt
                                                                    144
Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
     15
act ccc tac tgg atg cag tgg gta aaa cag agg cct gga cag ggt ctg
                                                                    192
Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu
gaa tgg att ggg tct att ttt cct gga gat ggt gat act agg tac agt
                                                                    240
Glu Trp Ile Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aag gcc aca ttg act gca gat aaa tcc tcc agt
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Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser
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aca gcc tac atg caa ctc agc atc ttg gca ttt gag gac tct gcg gtc
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Thr Ala Tyr Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val
         80
tat tac tgt gca aga gga tta cga cga ggg ggg tac tac ttt gac tac
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Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
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                        100
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gtc cac tcc gac atc cag atg acc cag agc cca agc agc ctg agc gcc
Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
age gtg ggt gae aga gtg ace ate ace tgt aag get agt cag gat gtg
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
     15
aat act gct gta gcc tgg tac cag cag aag cca gga aag gct cca aag
                                                                   192
Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
30
                                                                   240
ctg ctg atc tac tcg gca tcc aac cgg tac act ggt gtg cca agc aga
Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
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                 50
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BZ

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                                                                   48
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gtc cac tcc gac atc cag atg acc cag agc cca agc agc ctg agc gcc
                                                                   96
Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
         -1
              1
age gtg ggt gae aga gtg ace ate ace tgt aag get agt cag gat gtg
                                                                   144
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
     15
                         20
aat act gct gta gcc tgg tac cag cag aag cca gga aag gct cca aag
                                                                   192
Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
30
                     35
ctg ctg atc tac tcg gca tcc aac cgg tac act ggt gtg cca agc aga
                                                                   240
Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
                 50
ttc agc ggt agc ggt agt ggt acc gac tac acc ttc acc atc agc agc
                                                                   288
Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Phe Thr Ile Ser Ser
ctc cag cca gag gac atc gct acc tac tgc cag caa cat tat agt
                                                                   336
Leu Gln Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln His Tyr Ser
act cca ttc acg ttc ggc caa ggg acc aag gtg gaa atc aaa c
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Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
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<223> Description of Artificial Sequence: Humanized L chain V

region of anti-HM1.24 antibody

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Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
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Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
Phe Ser Gly Ser Gly Ser Gly Thr Asp Tyr Thr Phe Thr Ile Ser Ser
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                                                                   48
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
                -15
                                    -10
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
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cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 25	144
act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40 45	192
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 55 60	240
cag aag ttc aag ggc aga gtc acc atg acc gca gac acg tcc acg agc Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser 65 70 75	288
aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 85 90	336
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105	384
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 120	418
<210> 16 <211> 139 <212> PRT <213> Artificial Sequence	
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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 5 10	
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 25	
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40 45	

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 55 60

Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser

ps

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 85 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 115 <210> 17 <211> 418 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version b) of anti-HM1.24 antibody <220> <221> sig\_peptide <222> (1)..(57) <220> <221> mat\_peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 17 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50

cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc acg agc

Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Thr Ser
65 70 75



aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 115 <210> 18 <211> 139 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Humanized H chain V region (version b) of anti-HM1.24 antibody <400> 18 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 -5 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 60 Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115

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Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser
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				act agg tac Thr Arg Tyr 60	
		_		aag tcc acg Lys Ser Thr 75	_
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_				tac ttt gac Tyr Phe Asp	
		gtc acc gtc Val Thr Val			418
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Ala His Ser	Gln Val Gln 1	Leu Val Gln 5	Ser Gly Ala	Glu Val Lys	Lys
Pro Gly Ala 15	Ser Val Lys	Val Ser Cys 20	Lys Ala Ser 25	Gly Tyr Thr	Phe

B 8

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Lys Ser Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser <210> 23 <211> 418 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version e) of anti-HM1.24 antibody <220> <221> sig peptide <222> (1)..(57) <220> <221> mat peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 23 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt 48 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -10 get cae tee cag gtg cag etg gtg cag tet ggg get gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys ect ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser cag aag ttc aag ggc aga gcc acc ctg acc gca gac acg tcc acg agc 288 Gln Lys Phe Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 336 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 <210> 24 <211> 139 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: H chain V region (version e) of anti-HM1.24 antibody <400> 24 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Thr Ser 70 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser



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                                                          -5
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
         -1
cet ggg gee tea gtg aag gtt tee tge aag gea tet gga tae ace tte
                                                                   144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
     15
act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt
                                                                   192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt
                                                                   240
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aga gcc acc ctg act gca gac acg tcc tcg agc
                                                                   288
Gln Lys Phe Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser
aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg
                                                                   336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
        -80
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac
                                                                   384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
                        100
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J.

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tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
                    115
<210> 26
<211> 139
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Humanizaed H chain V
      region (version f) of anti-HM1.24 antibody
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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
     15
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
                                                          60
                 50
Gln Lys Phe Lys Gly Arg Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
         80
                                                  90
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
                        100
                                             105
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
                    115
<210> 27 ·
<211> 418
<212> DNA
<213> Artificial Sequence
<220>.
<223> Description of Artificial Sequence: DNA coding for
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      HM1.24 antibody
<220>
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<222> (1)..(57)
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<220>
<221> mat_peptide
<222> (58)..(417)
<220>
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<222> (1)..(417)
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Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
                -15
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag
                                                                   96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc
                                                                   144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
act ccc tac tgg atg cag tgg gtg cga cag cgc cct gga caa ggg ctt
                                                                   192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Arg Pro Gly Gln Gly Leu
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt
                                                                   240
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aga gtc acc atg acc gca gac acg tcc acg agc
                                                                   288
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser
                                 70
aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg
                                                                   336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
         80
                             85
                                                  90
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac
                                                                   384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
                        100
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
                                                                   418
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110
                    115
<210> 28
<211> 139
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Humanized H chain V
      region (version g) of anti-HM1.24 antibody
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Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly

-10

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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Arg Pro Gly Gln Gly Leu
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
<210> 29
<211> 418
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: DNA coding for
      humanized H chain V region (version h) of anti-
      HM1.24 antibody
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<221> sig_peptide
<222> (1)..(57)
<220>
<221> mat_peptide
<222> (58)..(417)
<220>
<221> CDS
<222> (1)..(417)
<400> 29
atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt
                                                                   48
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
get cac tee cag gtg cag etg gtg cag tet ggg get gag gtg aag aag
                                                                   96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
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cct ggg g Pro Gly A														
15														144
act ccc to Thr Pro T														192
gag tgg a Glu Trp M														240
cag aag t Gln Lys P														288
aca gcc t Thr Ala T	_	_												336
tat tac to Tyr Tyr C 95														384
tgg ggg c Trp Gly G 110									a					418
<210> 30 <211> 139 <212> PRT														
<213> Art	ificia	l Seq	uenc	e										
<220> <223> Des		on of	Art	ific							H cl	nain	v	
<220> <223> Des	criptio	on of	Art	ific of	anti	iHM:	1.24	anti	ibody	7				
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<220> <223> Des reg <400> 30 Met Asp T  Ala His S  Pro Gly A 15  Thr Pro T	criptic ion (ve  rp Thr  er Gln -1 1  la Ser  yr Trp	Trp -15 Val Val	E Arton h) Arg Gln Lys Gln 35	of Val Leu Val 20	Phe Val 5 Ser Val	Phe Gln Cys	Leu -10 Ser Lys	Leu Gly Ala Ala 40	Ala Ala Ser 25	Val Glu 10 Gly Gly	Ala Val Tyr Gln	Pro -5 Lys Thr	Gly Lys Phe Leu 45	

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 115 <210> 31 <211> 418 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version i) of anti-HM1.24 antibody <220> <221> sig peptide <222> (1)..(57) <220> <221> mat\_peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 31 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 get cae tee cag gtg cag etg gtg cag tet ggg get gag gtg aag aag . Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc tcg agc 288 Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser

70

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aca gcc tac atg gag ctg agc agc ctg gca ttt gag gac acg gcc gtg 336 Thr Ala Tyr Met Glu Leu Ser Ser Leu Ala Phe Glu Asp Thr Ala Val 85 tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 95 tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser <210> 32 <211> 139 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Humanizaed H chain V region (version i) of anti-HM1.24 antibody <400> 32 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Ala Phe Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115

B

<210> 33

<211> 418

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA coding for

humanizaed H chain V region (version j) of anti-HM1.24 antibody <220> <221> sig\_peptide <222> (1)..(57) <220> <221> mat\_peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 33 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 20 act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 cag aag ttc aag ggc aaa gcc acc ctg act gca gac acg tcc tcg agc 288 Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser 70 aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 336 Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 120 <210> 34 <211> 139

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<212> PRT

<213> Artificial Sequence

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<223> Description of Artificial Sequence: Humanizaed H chain V
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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
 30
                     35
                                          40
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Thr Ser Ser Ser
                                 70
             65
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
     95
                        100
                                             105
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110
                    115
<210> 35
<211> 418
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: DNA coding for
      H chain V region (version k) of anti-HM1.24
      antibody
<220>
<221> sig_peptide
<222> (1)..(57)
<220>
<221> mat_peptide
<222> (58)..(417)
<220>
<221> CDS
<222> (1)..(417)
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<220>

<400> 35 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 20 act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc tcg agc 288 Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser aca gcc tac atg cag ctg agc cta aga tct gag gac acg gcc gtg 336 Thr Ala Tyr Met Gln Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 85 90 tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 <210> 36 <211> 139 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Humanized H chain V region (version k) of anti-HM1.24 antibody <400> 36 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -10 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 20

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser <210> 37 <211> 418 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version 1) of anti-HM1.24 antibody <220> <221> sig\_peptide <222> (1)..(57) <220> <221> mat peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 37 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt 48 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -10 gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys - 1 cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192 Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc tcg agc 288 Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser aca gcc tac atg cag ctg agc atc ctg aga tct gag gac acg gcc gtg 336 Thr Ala Tyr Met Gln Leu Ser Ile Leu Arg Ser Glu Asp Thr Ala Val tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac 384 Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 100 tgg ggg caa ggg acc acg gtc acc gtc tcc tca g 418 Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser <210> 38 <211> 139 <212> PRT <213> Artificial Sequence <223> Description of Artificial Sequence: Humanized H chain V region (version 1) of anti-HM1.24 antibody Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ile Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115

B

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<210> 39
<211> 418
<212> DNA
<213> Artificial Sequence
<220>
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      humanized H chain V region (version m) of anti-
      HM1.24 antibody
<220>
<221> sig peptide
<222> (1)..(57)
<220>
<221> mat peptide
<222> (58)..(417)
<220>
<221> CDS
<222> (1)..(417)
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atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt
                                                                   48
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
get cac tee cag gtg cag etg gtg cag tet ggg get gag gtg aag aag
                                                                   96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
         -1
              1
cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
     15
act ecc tac tgg atg cag tgg gtg ega cag gee eet gga caa ggg ett
                                                                   192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
30
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt
                                                                   240
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc tcg agc
                                                                   288
Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser
aca gcc tac atg cag ctg agc atc ctg aga tct gag gac tcg gcc gtg
                                                                   336
Thr Ala Tyr Met Gln Leu Ser Ile Leu Arg Ser Glu Asp Ser Ala Val
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac
                                                                   384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
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418

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tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
                    115
<210> 40
<211> 139
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Humanized H chain V
      region (version m) of anti-HM1.24 antibody
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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
                 50
                                                          60
Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser
Thr Ala Tyr Met Gln Leu Ser Ile Leu Arg Ser Glu Asp Ser Ala Val
         80
                                                  90
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
                        100
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110
<210> 41
<211> 418
<212> DNA
<213> Artificial Sequence
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<220>

ej: 1 - 20

<223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version n) of anti-HM1.24 antibody

<220>

<221> sig\_peptide

<222> (1)..(57)

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<220>
<221> mat_peptide
<222> (58) .. (417)
<220>
<221> CDS
<222> (1)..(417)
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                                                                   48
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag
                                                                   96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc
                                                                   144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
                         20
act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt
                                                                   192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt
                                                                   240
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aaa gtc acc atg acc gca gac acg tcc tcg agc
                                                                   288
Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser
aca gcc tac atg gag ctg agc atc ctg aga tct gag gac acg gcc gtg
                                                                   336
Thr Ala Tyr Met Glu Leu Ser Ile Leu Arg Ser Glu Asp Thr Ala Val
         80
                                                  90
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac
                                                                   384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
                        100
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
                                                                   418
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110
                    115
<210> 42
<211> 139
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Humanized H chain V
      region (version n) of anti-HM1.24 antibody
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
```

-10

-15

Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
-1 1 5 10

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
15 20 25

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 45

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
50 55 60

Gln Lys Phe Lys Gly Lys Val Thr Met Thr Ala Asp Thr Ser Ser Ser 65 70 75

Thr Ala Tyr Met Glu Leu Ser Ile Leu Arg Ser Glu Asp Thr Ala Val 80 85 90

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 120

<210> 43

<211> 418

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version o) of anti-HM1.24 antibody

<220>

<221> sig\_peptide

<222> (1)..(57)

<220>

<221> mat peptide

<222> (58)..(417)

<220>

<221> CDS

<222> (1)..(417)

<400> 43

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gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
-1 1 5 10

Pro Gly Ala 15	tca gtg Ser Val									144
act ccc tac Thr Pro Tyr 30										192
gag tgg atg Glu Trp Met										240
cag aag ttc Gln Lys Phe										288
aca gcc tac Thr Ala Tyr 80										336
tat tac tgt Tyr Tyr Cys 95					Gly T					384
tgg ggg caa Trp Gly Gln 110				-	_	i				418
<210> 44 <211> 139 <212> PRT <213> Artif	icial Sec	quence								
<211> 139 <212> PRT <213> Artif <220> <223> Descr		Artifi					Н ch	nain	v	
<211> 139 <212> PRT <213> Artif <220> <223> Descr	iption of n (versio	Artifi on o) of	anti <sup>.</sup>	-HM1.24	antib	oody				
<211> 139 <212> PRT <213> Artif <220> <223> Descr region <400> 44	iption of n (version Thr Trp -15	Artifi on o) of Arg Val	anti	-HM1.24 Phe Leu -10	antib	oody ala Val	Ala	Pro -5	Gly	
<211> 139 <212> PRT <213> Artif <220> <223> Descr region <400> 44 Met Asp Trp  Ala His Ser	iption of n (version Thr Trp -15 Gln Val	Artifi on o) of Arg Val Gln Leu	Phe I	-HM1.24 Phe Leu -10 Gln Ser	Leu A Gly A Ala S	oody ala Val ala Glu 10	Ala Val	Pro -5 Lys	Gly Lys	
<211> 139 <212> PRT <213> Artif <220> <223> Descr region <400> 44 Met Asp Trp  Ala His Ser -1 Pro Gly Ala	iption of n (version Thr Trp -15 Gln Val 1	E Artifion of Arg Val Gln Leu Lys Val	Phe I	-HM1.24 Phe Leu -10 Gln Ser Cys Lys	Leu A Gly A Ala S	oody ala Val ala Glu 10 ser Gly 25	Ala Val Tyr	Pro -5 Lys Thr	Gly Lys Phe	
<pre>&lt;211&gt; 139 &lt;212&gt; PRT &lt;213&gt; Artif &lt;220&gt; &lt;223&gt; Descr     region &lt;400&gt; 44 Met Asp Trp  Ala His Ser</pre>	iption of n (version  Thr Trp  -15  Gln Val  1  Ser Val  Trp Met	Artifion o) of Arg Val Gln Leu Lys Val 20 Gln Trp 35	Phe I Val ( 5 Ser ( Val I	-HM1.24  Phe Leu -10  Gln Ser  Cys Lys  Arg Gln	Leu A Gly A Ala S Ala P	oody ala Val ala Glu 10 Ser Gly 25	Ala Val Tyr Gln	Pro -5 Lys Thr	Gly Lys Phe Leu 45	

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Ser Ala Val

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 115 <210> 45 <211> 418 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version p) of anti-HM1.24 antibody <220> <221> sig peptide <222> (1)..(57) <220> <221> mat\_peptide <222> (58)..(417) <220> <221> CDS <222> (1)..(417) <400> 45 atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt 48 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 get cae tee cag gtg cag etg gtg cag tet ggg get gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144 Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 act eec tae tgg atg eag tgg gtg ega eag gee eet gga eaa ggg ett Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser

cag aag ttc aag ggc aga gtc acc atg acc gca gac acg tcc acg agc

Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser

288

aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 85 90	336
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105	384
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115 120	418
<210> 46 <211> 139 <212> PRT <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Humanized H chain V region (version p) of anti-HM1.24 antibody	
<pre>&lt;400&gt; 46 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 -10 -5</pre>	
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys	
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 25	
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40 45	
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 55 60	
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser 65 70 75	
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val	
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105	
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 120	
<210> 47 <211> 418 <212> DNA <213> Artificial Sequence	

<220>

<223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version p) of anti-HM1.24 antibody

<220>

<221> sig\_peptide

<222> (1) ... (57)

<220>

<221> mat\_peptide

<222> (58)..(417)

<220>

<221> CDS

<222> (1)..(417)

<400> 47

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Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly

-15

gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 96 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 5 10

cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc 144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
15 20 25

act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt 192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
30 35 40 45

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt 240 Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser

cag aag ttc aag ggc aga gtc acc atg acc gca gac acg tcc tcg agc 288 Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Ser Ser

aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg 336 Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val 80 85 90

tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105

tgg ggg caa ggg acc acg gtc acc gtc tcc tca g

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser

110 115 120

<210> 48

<211> 139

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Humanizaed H chain V region (version p) of anti-HM1.24 antibody

<400> 48

Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly

Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser

Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Ser Ser

Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 110 115

<210> 49

<211> 418

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: DNA coding for humanized H chain V region (version r) of anti-HM1.24 antibody

<220>

<221> sig\_peptide

<222> (1)..(57)

<220>

<221> mat\_peptide

<222> (58)..(417)

<220>

<221> CDS

<222> (1)..(417)

<400> 49			
Met Asp Trp Thr T	gg agg gtc ttc ttc rp Arg Val Phe Phe 15		_
	tg cag ctg gtg cag al Gln Leu Val Glr 5		
	tg aag gtt tcc tgc al Lys Val Ser Cys 20		
	tg cag tgg gtg cga et Gln Trp Val Arg 35		
Glu Trp Met Gly So	ct att ttt cct gga er Ile Phe Pro Gly 50		
	gc aga gtc acc atg ly Arg Val Thr Met 70	Thr Ala Asp Lys	
	ag ctg agc agc ctg lu Leu Ser Ser Leu 85		
	ga gga tta cga cga rg Gly Leu Arg Arg 100		
	cc acg gtc acc gtc hr Thr Val Thr Val 115	<del>-</del>	418
<210> 50 <211> 139 <212> PRT <213> Artificial	Sequence		
<del>-</del>	of Artificial Secsion r) of anti-HM		H chain V
	rp Arg Val Phe Phe 15	Leu Leu Ala Val	Ala Pro Gly
Ala His Ser Gln V -1 1	al Gln Leu Val Glr 5	Ser Gly Ala Glu 10	Val Lys Lys
Pro Gly Ala Ser V	al Lys Val Ser Cys 20	Lys Ala Ser Gly 25	Tyr Thr Phe

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser <210> 51 <211> 40 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 51 actagtcgac atgaagttgc ctgttaggct gttggtgctg 40 <210> 52 <211> 39 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 52 actagtcgac atggagwcag acacactcct gytatgggt 39 <210> 53 <211> 40 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 53 actagtcgac atgagtgtgc tcactcaggt cctggsgttg 40

<210> 54 <211> 43

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<212> DNA
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<223> Description of Artificial Sequence: Synthetic DNA Primer
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actagtcgac atgaggrccc ctgctcagwt tyttggmwtc ttg
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<210> 55
<211> 40
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 55
actagtcgac atggatttwc aggtgcagat twtcagcttc
                                                                    40
<210> 56
<211> 37
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 56
                                                                   37
actagtcgac atgaggtkcy ytgytsagyt yctgrgg
<210> 57
<211> 41
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 57
                                                                    41
actagtcgac atgggcwtca agatggagtc acakwyycwg g
<210> 58
<211> 41
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 58
actagtcgac atgtggggay ctktttycmm tttttcaatt g
                                                                    41
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<210> 59
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 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: Synthetic DNA Primer
 <400> 59
 actagtcgac atggtrtccw casctcagtt ccttg
                                                                     35
 <210> 60
 <211> 37
 <212> DNA
 <213> Artificial Sequence
 <223> Description of Artificial Sequence: Synthetic DNA Primer
 <400> 60
                                                                     37
 actagtcgac atgtatatat gtttgttgtc tatttct
 <210> 61
 <211> 38
 <212> DNA
 <213> Artificial Sequence
 <223> Description of Artificial Sequence: Synthetic DNA Primer
 <400> 61
 actagtcgac atggaagccc cagctcagct tctcttcc
                                                                     38
 <210> 62
. <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Description of Artificial Sequence: Synthetic DNA Primer
 <400> 62
                                                                     27
 ggatcccggg tggatggtgg gaagatg
 <210> 63
 <211> 25
 <212> DNA
 <213> Artificial Sequence
 <223> Description of Artificial Sequence: Synthetic DNA Primer
 <400> 63
 tagagtcacc gaggagccag ttgta
                                                                     25
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<210> 64
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 64
ggatcccggg agtggataga ccgatg
                                                                    26
<210> 65
<211> 34
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 65
                                                                    34
gataagcttc caccatgggc ttcaagatgg agtc
<210> 66
<211> 34
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 66
gataagcttc caccatggaa tgtaactgga tact
                                                                    34
<210> 67
<211> 34
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 67
ggcggatcca ctcacgtttt atttccaact ttgt
                                                                    34
<210> 68
<211> 34
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
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<400> 68 ggcggatcca ctcacctgag gagactgtga gagt	34
<210> 69 <211> 18 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic DNA Primer	
<400> 69 cagacagtgg ttcaaagt	18
<210> 70 <211> 26 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic DNA Primer	
<400> 70 gaatteggat ceacteaegt ttgatt	26
<210> 71 <211> 48 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic DNA Primer	
<400> 71 agtcaggatg tgaatactgc tgtagcctgg taccagcaga agccagga	48
<210> 72 <211> 39 <212> DNA <213> Artificial Sequence	
<220> <223> Description of Artificial Sequence: Synthetic DNA Primer	
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<210> 73 <211> 45 <212> DNA <213> Artificial Sequence	
<220>	

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caacattata gtactccatt cacgttcggc caagggacca aggtg
                                                                    45
<210> 74
<211> 47
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 74
gcagtattca catcctgact ggccttacag gtgatggtca ctctgtc
                                                                    47
<210> 75
<211> 38
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 75
acaccagtgt accggttgga tgccgagtag atcagcag
                                                                    38
<210> 76
<211> 41
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 76
gtgaatggag tactataatg ttgctggcag tagtaggtag c
                                                                    41
<210> 77
<211> 31
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer '
<400> 77
ggtaccgact acaccttcac catcagcagc c
                                                                    31
<210> 78
<211> 31
<212> DNA
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<213> Artificial Sequence

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<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 78
ggtgaaggtg tagtcggtac cgctaccgct a
                                                                   31
<210> 79
<211> 144
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 79
atgeettgea ggaaacette actgaggeec caggettett caceteagee ceagactgea 60
ccagctgcac ctgggagtga gcacctggag ctacagccag caagaagaag accctccagg 120
tccagtccat ggtggaagct tatc
<210> 80
<211> 130
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 80
tcagtgaagg tttcctgcaa ggcatctgga tacaccttca ctccctactg gatgcagtgg 60
gtgcgacagg cccctggaca agggcttgag tggatgggat ctatttttcc tggagatggt 120
gatactaggt
<210> 81
<211> 131
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 81
aatacacggc cgtgtcctca gatctcaggc tgctcagctc catgtagact gtgctcgtgg 60
acgtgtctgc ggtcatggtg actctgccct tgaacttctg actgtaccta gtatcaccat 120
ctccaggaaa a
<210> 82
<211> 119
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
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<400> 82
gagatetgag gacaeggeeg tgtattaetg tgegagagga ttaegaegag gggggtaeta 60
ctttgactac tgggggcaag ggaccacggt caccgtctcc tcaggtgagt ggatccgac 119
<210> 83
<211> 25
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 83
gataagcttc caccatggac tggac
                                                                    25
<210> 84
<211> 25
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
                                                                    25
gtcggatcca ctcacctgag gagac
<210> 85
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 85
                                                                    26
aagttcaagg gcaaagtcac catgac
<210> 86
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
gtcatggtga ctttgccctt gaactt
                                                                    26
<210> 87
<211> 26
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 87
atgaccgcag acaagtccac gagcac
                                                                    26
<210> 88
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 88
gtgctcgtgg acttgtctgc ggtcat
                                                                    26
<210> 89
<211> 47
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
aagttcaagg gcaaagtcac catgaccgca gacaagtcca cgagcac
                                                                    47
<210> 90
<211> 47
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
gtgctcgtgg acttgtctgc ggtcatggtg actttgccct tgaactt
                                                                    47
<210> 91
<211> 38
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
aagttcaagg gcagagccac cctgaccgca gacacgtc
                                                                    38
<210> 92
<211> 38
<212> DNA
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<213> Artificial Sequence	
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<223> Description of Artificial Sequence: Synthetic DNA Primer	
<400> 92	
gacgtgtctg cggtcagggt ggctctgccc ttgaactt	38
<210> 93	
<211> 18 <212> DNA	
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<400> 93 cagacagtgg ttcaaagt	18
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<211> 17	
<212> DNA	
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<400> 94	
gccccaaagc caaggtc	17
<210> 95 <211> 23	
<211> 23 <212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic DNA Primer	
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atttttcctg gagatggtga tac	23
<210> 96	
<211> 23	
<212> DNA <213> Artificial Sequence	
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2237 Descripcion of Arctificial Sequence. Synchecic DNA Filmer	
<400> 96	
gtatcaccat ctccaggaaa tat	23

<210> 97

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<211> 418
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: DNA coding for
      humanized H chain V region (native/version a mix)
      of anti-HM1.24 antibody
<220>
<221> sig_peptide
<222> (1)..(57)
<220>
<221> mat_peptide
<222> (58) .. (417)
<220>
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<222> (1)..(417)
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Met Glu Cys Asn Trp Ile Leu Pro Phe Ile Leu Ser Val Thr Ser Gly
gcc tac tca cag gtt caa ctc cag cag tct ggg gct gag ctg gca aga
Ala Tyr Ser Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg
         -1
              1
eet ggg get tea gtg aag ttg tee tge aag get tet gge tae ace ttt
                                                                   144
Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
     15
                         20
act ccc tac tgg atg cag tgg gta aaa cag agg cct gga cag ggt ctg
                                                                    192
Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu
 30
gaa tgg att ggg tct att ttt cct gga gat ggt gat act agg tac agt
Glu Trp Ile Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
cag aag ttc aag ggc aga gtc acc atg acc gca gac acg tcc acg agc
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser
aca gtc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg
                                                                   336
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
         80
                             85
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac
                                                                   384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g
                                                                   418
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
110
                    115
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<210> 98
<211> 139
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Humanized H chain V
      region (native/version a mix) of anti-HM1.24 antibody
<400> 98
Met Glu Cys Asn Trp Ile Leu Pro Phe Ile Leu Ser Val Thr Ser Gly
Ala Tyr Ser Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg
Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe
Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu
Glu Trp Ile Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
                                      55
                                                          60
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Thr Ser Thr Ser
Thr Val Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
         80
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
                    115
<210> 99
<211> 418
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: DNA coding for
      humanized C chain V region (native/version a mix)
     of anti-HM1.24 antibody
<220>
<221> sig_peptide
<222> (1)..(57)
<220>
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<221> mat\_peptide <222> (58)..(417)

<220> <221> CDS				
<222> (1) (417)				
<400> 99				
atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt 48 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly -15 -10 -5	8			
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag 900 Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 5 10	6			
cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe 15 20 25	44			
act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu 30 35 40 45	92			
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser 50 55 60	40			
cag aag ttc aag ggc aag gcc aca ttg act gca gat aaa tcc tcc agt Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser 65 70 75	88			
aca gcc tac atg caa ctc agc atc ttg gca ttt gag gac tct gcg gtc Thr Ala Tyr Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val 80 85 90	36			
tat tac tgt gca aga gga tta cga cga ggg ggg tac tac ttt gac tac Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr 95 100 105	84			
tgg ggc caa ggc acc act ctc aca gtc tcc tca g  Trp Gly Gln Gly Thr Thr Leu Thr Val Ser Ser  110 115 120	18			
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<220> <223> Description of Artificial Sequence: Humanized C chain V region (native/version a mix) of anti-HM1.24 antibody				
<pre>&lt;400&gt; 100 Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly</pre>				
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys -1 1 5 10				

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly 3ln Gly Thr Thr Leu Thr Val Ser Ser <210> 101 <211> 38 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 101 ctggttcggc ccacctctga aggttccaga atcgatag 38 <210> 102 <211> 35 <212> DNA <213> Artificial Sequence <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 102 gcagacacgt cctcgagcac agcctacatg gagct 35 <210> 103 <211> 35 <212> DNA <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Synthetic DNA Primer <400> 103

35

agctccatgt aggctgtgct cgaggacgtg tctgc

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<213> Artificial Sequence
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<400> 104
tgggtgcgac agcgccctgg acaagg
                                                                    26
<210> 105
<211> 26
<212> DNA
<213> Artificial Sequence
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 105
ccttgtccag ggcgctgtcg caccca
                                                                    26
<210> 106
<211> 41
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
tacatggagc tgagcagcct ggcatttgag gacacggccg t
                                                                    41
<210> 107
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<212> DNA
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acggccgtgt cctcaaatgc caggctgctc agctccatgt a
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<210> 108
<211> 26
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<223> Description of Artificial Sequence: Synthetic DNA Primer
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aagttcaagg gcaaagccac cctgac	26
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<210> 113 <211> 35 <212> DNA <213> Artificial Sequence	
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<210> 114
<211> 50
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<223> Description of Artificial Sequence: Synthetic DNA Primer
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<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 115
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<211> 20
<212> DNA
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<223> Description of Artificial Sequence: Synthetic DNA Primer
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                                                                    20
<210> 117
<211> 26
<212> DNA
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<400> 117
gatctcagga tgctcagctc catgta
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<210> 118
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 118
agatctgagg actcggccgt
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<210> 119
<211> 20
<212> DNA
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                                                                    20
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<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
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<210> 121
<211> 35
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<223> Description of Artificial Sequence: Synthetic DNA Primer
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<210> 122
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<223> Description of Artificial Sequence: Synthetic DNA Primer
gcagacacgt cctcgagcac agtctacatg gagct
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<211> 35
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<213> Artificial Sequence
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<400> 123
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<210> 124
<211> 26
<212> DNA
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<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 124
agagtcacca tcaccgcaga caagtc
                                                                    26
<210> 125
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Synthetic DNA Primer
<400> 125
gacttgtctg cggtgatggt gactct
                                                                    26
<210> 126
<211> 418
<212> DNA
<213> Artificial Sequence
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<223> Description of Artificial Sequence: DNA coding for
     humanized H chain V region (version s) of HM1.24
      antibody
<220>
<221> sig_peptide
<222> (1)..(57)
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<222> (58)..(417)
<220>
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			ttg ctg gct g Leu Leu Ala V -10		
_	Gln Val Glr		tct ggg gct g Ser Gly Ala G		
			aag gca tct g Lys Ala Ser G 25		
		Trp Val Arg	cag gcc cct g Gln Ala Pro G 40		
			gat ggt gat a Asp Gly Asp T 55		
			acc gca gac a Thr Ala Asp L		
			aga tot gag g Arg Ser Glu A		
			ggg ggg tac t Gly Gly Tyr T 105		
		g gtc acc gtc Val Thr Val		418	
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Ala His Ser		Leu Val Gln 5	Ser Gly Ala G	lu Val Lys Lys 10	
Pro Gly Ala 15	Ser Val Lys	Val Ser Cys 20	Lys Ala Ser G	ly Tyr Thr Phe	

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser 115 <210> 128 <211> 1013 <212> DNA <213> Homo sapiens <220> <221> CDS <222> (23)..(562) <220> <223> DNA coding for HM1.24 antigenic protein <400> 128 gaatteggea egagggatet gg atg gea tet act teg tat gae tat tge aga Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg gtg ccc atg gaa gac ggg gat aag cgc tgt aag ctt ctg ctg ggg ata 100 Val Pro Met Glu Asp Gly Asp Lys Arg Cys Lys Leu Leu Gly Ile gga att ctg gtg ctc ctg atc atc gtg att ctg ggg gtg ccc ttg att 148 Gly Ile Leu Val Leu Leu Ile Ile Val Ile Leu Gly Val Pro Leu Ile 30 35 atc ttc acc atc aag gcc aac agc gag gcc tgc cgg gac ggc ctt cgg 196 Ile Phe Thr Ile Lys Ala Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg 45 50 gca gtg atg gag tgt cgc aat gtc acc cat ctc ctg caa caa gag ctg 244 Ala Val Met Glu Cys Arg Asn Val Thr His Leu Leu Gln Gln Glu Leu 60 acc gag gcc cag aag ggc ttt cag gat gtg gag gcc cag gcc gcc acc Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu Ala Gln Ala Ala Thr 75

tgc aac cac act gtg atg gcc cta atg gct tcc ctg gat gca gag aag Cys Asn His Thr Val Met Ala Leu Met Ala Ser Leu Asp Ala Glu Lys 95 100 105	340
gcc caa gga caa aag aaa gtg gag gag ctt gag gga gag atc act aca Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu Gly Glu Ile Thr Thr 110 115 120	388
tta aac cat aag ctt cag gac gcg tct gca gag gtg gag cga ctg aga Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu Val Glu Arg Leu Arg 125 130 135	436
aga gaa aac cag gtc tta agc gtg aga atc gcg gac aag aag tac tac Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr 140 145 150	484
ccc agc tcc cag gac tcc agc tcc gct gcg gcg ccc cag ctg ctg attPro Ser Ser Gln Asp Ser Ser Ser Ala Ala Pro Gln Leu Leu Ile155160	532
gtg ctg ctg ggc ctc agc gct ctg ctg cag tgagatccca ggaagctggc Val Leu Leu Gly Leu Ser Ala Leu Leu Gln 175 180	582
acatcttgga aggtccgtcc tgctcggctt ttcgcttgaa cattcccttg atctcatcag	642
ttctgagcgg gtcatggggc aacacggtta gcggggagag cacggggtag ccggagaagg	702
gcctctggag caggtctgga ggggccatgg ggcagtcctg ggtctgggga cacagtcggg	762
ttgacccagg gctgtctccc tccagagcct ccctccggac aatgagtccc ccctcttgtc	822
teccaecetg agattgggca tggggtgegg tgtgggggge atgtgetgee tgttgttatg	882
ggttttttt gcggggggg ttgcttttt ctggggtctt tgagctccaa aaaaataaac	942
acttcctttg agggagagca caccttaaaa aaaaaaaaaa	1002
gggcggccgc c	1013
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<220> <223> HM1.24 antigenic protein	•
<pre>&lt;400&gt; 129 Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg Val Pro Met Glu Asp Gly</pre>	
Asp Lys Arg Cys Lys Leu Leu Cly Ile Gly Ile Leu Val Leu Leu 20 25 30	

Ile Ile Val Ile Leu Gly Val Pro Leu Ile Ile Phe Thr Ile Lys Ala

Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg 50 60

Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly 65 70 75 80

Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met 85 90 95

Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys 100 105 110

Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln 115 120 125

Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu 130 135 140

Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser 145 150 155 160

Ser Ser Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser 165 170 175

Ala Leu Leu Gln 180

<210> 130

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the L chain V region of AHM

<400> 130

Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15

Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Asn Thr Ala 20 25 30

Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile 35 40 45

Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Ile Thr Gly 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala 65 70 75 80

Glu Asp Leu Ala Leu Tyr Tyr Cys Gln Gln His Tyr Ser Thr Pro Phe 85 90 95 Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 131

<211> 80

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the L chain V region of HuSG I

<400> 131

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala 20 25 30

Pro Lys Leu Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly 35 40 45

Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro Glu Asp 50 55 60

Phe Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys 65 70 75 80

<210> 132

<211> 80

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the L chain V region of REI

<400> 132

Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15

Asp Arg Val Thr Ile Thr Cys Trp Tyr Gln Gln Lys Pro Gly Lys Ala
20 25 30

Pro Lys Leu Ile Tyr Gly Val Pro Ser Arg Phe Ser Gly Ser Gly

Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Leu Gln Pro Glu Asp
50 55 60

Ile Ala Thr Tyr Tyr Cys Phe Gly Gln Gly Thr Lys Val Glu Ile Lys 65 70 75 80

<210> 133

<211> 106

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the L chain V region of RVLa

<400> 133

Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15

Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Asn Thr Ala
20 25 30

Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile 35 40 45

Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Ile Thr Gly 50 55 60

Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser Val Gln Ala 65 70 75 80

Glu Asp Leu Ala Leu Tyr Tyr Cys Gln Gln His Tyr Ser Thr Pro Phe 85 90 95

Thr Gly Gln Gly Thr Lys Val Glu Ile Lys 100 105

<210> 134

<211> 107

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the L chain V region of RVLb

<400> 134

Asp Ile Val Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15

Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Asn Thr Ala
20 25 30

Val Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile 35 40 45

Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Asp Arg Ile Thr Gly 50 55 60

Ser Gly Ser Gly Thr Asp Tyr Thr Phe Thr Ile Ser Ser Val Gln Ala 65 70 75 80

Glu Asp Leu Ala Leu Tyr Tyr Cys Gln Gln His Tyr Ser Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys <210> 135 <211> 49 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) AHM <400> 135 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly <210> 136 <211> 44 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) HuSGI <220> <221> MOD RES <222> (16) <223> Any, other or unknown amino acid <220>

<221> MOD RES <222> (19) <223> Any, other or unknown amino acid <220> <221> MOD RES <222> (38) <223> Any, other or unknown amino acid

<400> 136

Glu Val Gln Leu Val Gln Ser Gly Ala Asp Val Lys Lys Pro Gly Xaa

Ser Val Xaa Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ser Trp Val

Arg Gln Ala Pro Gly Xaa Gly Leu Asp Trp Val Gly
35 40

<210> 137

<211> 44

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) HG3

<400> 137

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Asn Trp Val 20 25 30

Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly
35 40

<210> 138

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHa

<400> 138

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 35 40 45

Gly

<210> 139

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHb

<400> 139 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly <210> 140 <211> 49 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHc <400> 140 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 5 15 10 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 25 Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly <210> 141 <211> 49 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHd <400> 141 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 10 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 35 40 45

Gly

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<210> 142
<211> 49
<212> PRT
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<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (1) RVHe
<400> 142
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
                  5
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 143
<211> 49
<212> PRT
<213> Artificial Sequence
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<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (1) RVHf
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 144
<211> 49
<212> PRT
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<223> Description of Artificial Sequence: Amino acid
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sequence of the H chain V region (1) RVHg

<400> 144 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 25 Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly <210> 145 <211> 49 <212> PRT <213> Artificial Sequence <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHh Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 40 Gly <210> 146 <211> 49 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHi <400> 146 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile

Gly

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<210> 147
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<213> Artificial Sequence
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<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (1) RVHj
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Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 148
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (1) RVHk
<400> 148
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
                  5
                                                          15
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 149
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
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<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHl

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<400> 149
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Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 20 25 30

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 35 40 45

Gly

<210> 150

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHm

<400> 150

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 20 25 30

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 35 40 45

Gly

<210> 151

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHn

<400> 151

Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 1 5 10 15

Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 20 25 30

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 35 40 45

Gly

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<210> 152
<211> 49
<212> PRT
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      sequence of the H chain V region (1) RVHo
<400> 152
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 153
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (1) RVHp
<400> 153
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
                  5
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly
<210> 154
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
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sequence of the H chain V region (1) RVHq

<400> 154 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly <210> 155 <211> 49 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (1) RVHr <400> 155 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala 15 Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr 25 Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile 40 Gly <210> 156 <211> 49 <212> PRT <213> Artificial Sequence <223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) AHM <400> 156 Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

```
<210> 157
<211> 32
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) HuSGI
<220>
<221> MOD RES
<222> (4)
<223> Any, other or unknown amino acid
<221> MOD RES
<222> (6)
<223> Any, other or unknown amino acid
<220>
<221> MOD RES
<222> (8)
<223> Any, other or unknown amino acid
<220>
<221> MOD_RES
<222> (10)
<223> Any, other or unknown amino acid
<400> 157
Arg Val Thr Xaa Thr Xaa Asp Xaa Ser Xaa Asn Thr Ala Tyr Met Glu
 1
                  5
                                                          15
Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
             20
                                  25
<210> 158
<211> 32
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) HG3
<400> 158
Arg Val Thr Met Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu
Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg
                                  25
<210> 159
<211> 49
<212> PRT
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<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHa
<400> 159
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
                                 25
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
Arg
<210> 160
<211> 49
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHb
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
                                      10
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
             20
                                 25
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
                             40
Arg
<210> 161
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHc
<400> 161
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
```

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 162

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHd

<400> 162

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys 1 5 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met 20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 · 45

Arg

<210> 163

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHe

<400> 163

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
1 5 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met 20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arq

<210> 164

<211> 49

<212> PRT

<213> Artificial Sequence

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D$
```

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<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHf
<400> 164
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
                              40
Arg
<210> 165
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHg
<400> 165
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
Arg
<210> 166
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHh
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
                                  25
```

```
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
35 40 45
```

Arg

<210> 167

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHi

<400> 167

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 168

<211> 49

<212> PRT

<213> Artificial Sequence

<220:

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHj

-400> 168

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met 20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 169

<211> 49

<212> PRT

<213> Artificial Sequence



<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHk

<400> 169

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met 20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 170

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid
 sequence of the H chain V region (2) RVH1

<400> 170

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr/Met
20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 171

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid
 sequence of the H chain V region (2) RVHm

<400> 171

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
20 25 30

pt.

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 . 40 45

Arg

<210> 172

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHn

<400> 172

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys

1 5 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 173

<211> 49

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino acid sequence of the H chain V region (2) RVHo

-400× 173

Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys 1 5 10 15

Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
20 25 30

Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala 35 40 45

Arg

<210> 174

<211> 49

<212> PRT

<213> Artificial Sequence



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<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHp
<400> 174
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
                                  25
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
Arg
<210> 175
<211> 49
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHq
<400> 175
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
             20
                                  25
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
                              40
Arg
<210> 176
<211> 49
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region (2) RVHr
<400> 176
Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys
  1
Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met
                                 25
Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys Ala
         35
                             40
```

Arg

```
<210> 177
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region AHM
<400> 177
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 178
<211> 11
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region HuSGI
Trp Gly Gln Gly Thr Leu Val Thr Val Ser Ser
<210> 179
<211> 11
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region JH6
<400> 179
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
                  5
<210> 180
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHa
```

BK

<400> 180

```
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 181
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHb
<400> 181
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
                                      10
Thr Leu Thr Val Ser Ser
             20
<210> 182
<211> 22
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHc
<400> 182
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 183
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHd
<400> 183
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
```

```
<210> 184
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHe
<400> 184
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 185
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHf
<400> 185
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
  1
Thr Leu Thr Val Ser Ser
             20
<210> 186
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHg
<400> 186
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 187
<211> 22
<212> PRT
<213> Artificial Sequence
```

DE

<220>

```
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHh
<400> 187
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 188
<211> 22
<212> PRT
<213> Artificial Sequence
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHi
<400> 188
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 189
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHj
<400> 189
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 190
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHk
<400> 190
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
```

```
Thr Leu Thr Val Ser Ser
             20
<210> 191
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHl
<400> 191
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
                                      10
Thr Leu Thr Val Ser Ser
             20
<210> 192
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHm
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 193
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHn
<400> 193
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 194
<211> 22
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<212> PRT

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<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHo
<400> 194
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
                                      10
Thr Leu Thr Val Ser Ser
             20
<210> 195
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHp
<400> 195
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
  1
                  5
Thr Leu Thr Val Ser Ser
             20
<210> 196
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
      sequence of the H chain V region RVHq
<400> 196
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 197
<211> 22
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Amino acid
     sequence of the H chain V region RVHr
```

```
<400> 197
Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln Gly Thr
Thr Leu Thr Val Ser Ser
             20
<210> 198
<211> 120
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Design of V
      region of Natural Humanized Antibody (HM1.24)
Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala
Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr
Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys
Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln
Gly Thr Thr Leu Thr Val Ser Ser
        115
<210> 199
<211> 87
<212> PRT
<213> Artificial Sequence
<220>
<223> Description of Artificial Sequence: Design of V
      region of Natural Humanized Antibody (HuSGI)
<220>
<221> MOD RES
<222> (16)
<223> Any, other or unknown amino acid
<220>
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Ø < }

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<221> MOD RES
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<222> (19)

<223> Any, other or unknown amino acid

<220>

<221> MOD\_RES

<222> (38)

<223> Any, other or unknown amino acid

<400> 199

Glu Val Gln Leu Val Gln Ser Gly Ala Asp Val Lys Lys Pro Gly Xaa 1 5 10 15

Ser Val Xaa Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Ser Trp Val 20 . 25 30

Arg Gln Ala Pro Gly Xaa Gly Leu Asp Trp Val Gly Arg Val Thr Xaa 35 40 45

Thr Xaa Asp Xaa Ser Xaa Asn Thr Ala Tyr Met Glu Leu Ser Ser Leu 50 55 60

Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Trp Gly Gln Gly 65 70 75 80

Thr Leu Val Thr Val Ser Ser 85

<210> 200

<211> 87

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Design of V region of Natural Humanized Antibody (HG3)

<400> 200

Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ala 1 5 10 15

Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Asn Trp Val

Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Arg Val Thr Met
35 40 45

Thr Arg Asp Thr Ser Thr Ser Thr Val Tyr Met Glu Leu Ser Ser Leu 50 60

Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg Trp Gly Gln Gly
65 70 75 80

Thr Thr Val Thr Val Ser Ser

85

Dq

<210> 201 <211> 120 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Design of V region of Natural Humanized Antibody (RVHr) <400> 201 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys 85 95 Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln 105 Gly Thr Thr Leu Thr Val Ser Ser 115 <210> 202 <211> 120 <212> PRT <213> Artificial Sequence <220> <223> Description of Artificial Sequence: Design of V region of Natural Humanized Antibody (2ndRVH) <400> 202 Gln Val Gln Leu Gln Gln Ser Gly Ala Glu Leu Ala Arg Pro Gly Ala Ser Val Lys Leu Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Pro Tyr

Trp Met Gln Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile

Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser Gln Lys Phe

Lys Gly Lys Ala Thr Ile Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80

Met Gln Leu Ser Ile Leu Ala Phe Glu Asp Ser Ala Val Tyr Tyr Cys 85 90 95

Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr Trp Gly Gln 100 105 110

Gly Thr Thr Leu Thr Val Ser Ser 115 120

<210> 203

<211> 94

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Primary design antibody

<400> 203

Arg Tyr Thr Met Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr Met Glu
1 5 10 15

Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg 20 25 30

Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met Gly Arg Ile Ile 35 40 45

Pro Ile Leu Gly Ile Ala Asn Tyr Ala Gln Lys Phe Gln Gly Arg Val
50 55 60

Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr Met Glu Leu Ser 65 70 75 80

Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys Ala Arg

By